

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) Limiter optics for an ignition feedback regenerative free electron laser amplifier having a pulsed output beam of predetermined duration from an undulator comprising:

A. A pickoff ~~means for member adapted to~~ directing a portion of the output of said pulsed output beam as a pickoff beam; and

B. a ~~focusing assembler~~ limiter assembly adapted to bringing said directed pickoff beam to a focus at a selected point within said undulator at a selected time.

2. (currently amended) Limiter optics as described in Claim 1 where said pickoff ~~means member~~ comprises a convex pickoff mirror ~~for~~ adapted to creating a pickoff beam and which expands said pickoff beam to a predetermined size.

3. (currently amended) Limiter optics as described in Claim 1 where said focusing assembly limiter assembly further comprises:

A. An expander mirror for adapted to modifying spatial and temporal characteristics of said portion of the output picked off by said pickoff means;

B. a first focusing optics adapted to focus focusing said modified directed pickoff beam to a focal point;

C. a limiter plate movably placed near said focal point so as to have allow said focused modified directed pickoff beam to pass through said limiter plate;

D. adjusting means member operably connected to said limiter plate and adapted to move it closer to or farther from said focal point as desired; and

E. a second focusing optics placed after said pickoff beam has passed through said limiter plate and adapted to refocus said focused directed pickoff beam to a predetermined point in said ignition feedback regenerative free electron laser amplifier.

4. (currently amended) Limiter optics as described in Claim 2 where said focusing limiter assembly further comprises:

A. An expander mirror for adapted to modifying spatial and temporal characteristics of said portion of the output picked off by said pickoff means member;

B. a first focusing optics adapted to focusing said modified directed pickoff beam to a focal point;

C. a limiter plate movably placed near said focal point so as to have allow said focused modified directed pickoff beam to pass through said limiter plate;

D. adjusting means member operably connected to said limiter plate and adapted to move it closer to or farther from said focal point as desired; and

E. a second focusing optics placed after said pickoff beam has passed through said limiter plate and adapted to refocus said focused directed pickoff beam to a predetermined point in said ignition feedback regenerative free electron laser amplifier.

5. (currently amended) Limiter optics as described in Claim 3 where said expander mirror comprises a half silvered mirror which changes adapted to change the pulse duration of the directed picked off portion of said pulsed output beam by a predetermined amount.

6. (currently amended) Limiter optics as described in Claim 4 where said expander mirror comprises a half silvered mirror which is adapted to change changes the pulse duration of the directed picked off portion of said pulsed output beam by a predetermined amount.

7. (currently amended) Limiter optics as described in Claim 3 where said expander mirror comprises a phased mirror having at least one step so as adapted to increase the pulse duration of the directed picked off portion of said picked output beam.

8. (currently amended) Limiter optics as described in Claim 4 where said expander mirror comprises a phased mirror having at least one step so as adapted to increase the pulse duration of the directed picked off portion of said picked output beam.

9. (currently amended) Limiter optics as described in Claim 3 further comprising a Cassegrainian arrangement for wherein said first focusing optics comprises a Cassegrainian arrangement and said second focusing optics comprises a Cassegrainian arrangement for said second focusing optics.

10.(currently amended) Limiter optics as described in Claim 4
~~further comprising a Cassegrainian arrangement for wherein said first focusing optics comprises a Cassegrainian arrangement and said second focusing optics comprises a Cassegrainian arrangement for said second focusing optics.~~

11.(currently amended) Limiter optics as described in Claim 5
~~further comprising a Cassegrainian arrangement for wherein said first focusing optics comprises a Cassegrainian arrangement and said second focusing optics comprises a Cassegrainian arrangement for said second focusing optics.~~

12.(currently amended) Limiter optics as described in Claim 6
~~further comprising a Cassegrainian arrangement for wherein said first focusing optics comprises a Cassegrainian arrangement and said second focusing optics comprises a Cassegrainian arrangement for said second focusing optics.~~

13.(currently amended) Limiter optics as described in Claim 7
~~further comprising a Cassegrainian arrangement for wherein said first focusing optics comprises a Cassegrainian arrangement and said second focusing optics comprises a Cassegrainian arrangement for said second focusing optics.~~

14. (currently amended) Limiter optics as described in Claim 8
~~further comprising a Cassegrainian arrangement for wherein said first focusing optics comprises a Cassegrainian arrangement and said second focusing optics comprises a Cassegrainian arrangement for said second focusing optics.~~

15. Limiter optics as described in Claim 3 where said expander mirror comprises a phased mirror of striped mesas, said striped mesa being parallel to each other and having a preselected height.

16. Limiter optics as described in Claim 4 where said expander mirror comprises a phased mirror of striped mesas, said striped mesa being parallel to each other and having a preselected height.

17. Limiter optics as described in Claim 15 further comprising a Cassegrainian arrangement for said first focusing optics and a Cassegrainian arrangement for said second focusing optics.

18. Limiter optics as described in Claim 16 further comprising a Cassegrainian arrangement for said first focusing optics and a Cassegrainian arrangement for said second focusing optics.

19. (currently amended) A method of extending the duration of an optical pulse comprising the steps of:

A. Placing placing a phased pickoff mirror with a plurality of predetermined mesas in the path of said optical pulse ~~for~~ whereby creating a plurality of parallel pulse beams are created from said optical pulse, each adjoining parallel pulse beam having a predetermined time lag from the other parallel beams;

B. transmitting said plurality of parallel pulse beams into an aperture of focusing optics such that all of said plurality of parallel pulse beams are focused to a predetermined location; and

C. providing refocusing optics optically arranged to refocus all light passing through said predetermined location to a second predetermined location such that said plurality of parallel pulsed beams ~~are now appearing~~ appear at the same desired location only separated in time.